
Evaluating Dynamic Modulus of Asphalt Course Relating Empirical Approach and Field Measurements

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Abstract

The determination of the material characteristics and describing its performance under specific conditions are considered as an essential factor for better structural pavement design. The determination of these characteristics is based on laboratory tests or empirical relationships.

In this paper the behavior of asphalt layer is represented as viscoelastic, and it's recommended to use the Pellinen and Witczak model which was adopted from NCHRP. The dynamic modulus E^* is calculated in this model, and the asphalt mixes changes due to the effect of design factors as loading and temperature are reflected in this prediction model. Algorithms of the model are applied on field specimens taken from Damascus Kara highway, in addition to Marshall tests on the same specimens. Also field FWD measurements are performed to obtain E^* .

The objective of this research is to study the effects of aging, depth variation, loading, and temperature on the results. Also field FWD measurements are compared with the E^* predictive values to achieve a relationship between the measured and calculated E^* values.

For the paper in Arabic see pages (259-275)

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